



Parvatibai Chowgule College of Arts and Science  
Autonomous

Accredited by NAAC with Grade 'A' (CGPA Score 3.41 on a 4 Point Scale in 3rd cycle)  
Best affiliated College-Goa University Silver Jubilee Year Award

## **GREEN INITIATIVES**

**2018-2019**



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**E-Waste Collection Drive**

An **E-Waste Collection Drive** was undertaken for a week from 11<sup>th</sup> February 2019 to 16<sup>th</sup> February 2019 wherein the teachers and students collected their e-waste from home and deposited in the college campus. The entire collected e-waste was then properly delivered to **Global E-Waste Management System** for proper dumping of the e-waste without damaging environment.





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**Shramadan (cleaning) and repairing the play ground at adopted village panchayat, Rumdamol-Davorlim**

An activity of Shramadan(cleaning) and repairing the play ground at adopted village panchayat,Rumdamol-Davorlim was carried out by 55 NSS volunteers of Parvatibai Chowgule college of Arts and Science, Autonomous on 24<sup>th</sup> September 2018.





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### **Report of “Shramdaan”**

115 NSS volunteers of Parvatibai Chowgule college of Arts and Science, Autonomous carried out Shramdaan to commemorate Gandhi Jayanti on 2<sup>nd</sup> October 2018. NSS volunteers were actively engaged in the cleaning process and cleaned many areas in the college campus including two-wheeler parking area, college statues, butterfly garden, coop, and washed and cleaned balcao of the college. The plastic waste was segregated from the organic waste and was dumped in the respective bins.



**GREEN INITIATIVES UNDERTAKEN  
BY  
DR. NANDINI VAZ FERNANDES**

Various activities related to environment consciousness such as competitions, Industry-academia lectures, fieldtrips, workshops/conferences/seminars related to environment conservation and awareness programmes were conducted as Green initiatives. Other green initiatives undertaken by me on the campus are formulation of 'Birders Club', 'Butterfly garden' and 'Vermicomposting'. Under my guidance (along with 03 other teachers) the students carried out many environment protection awareness programmes.

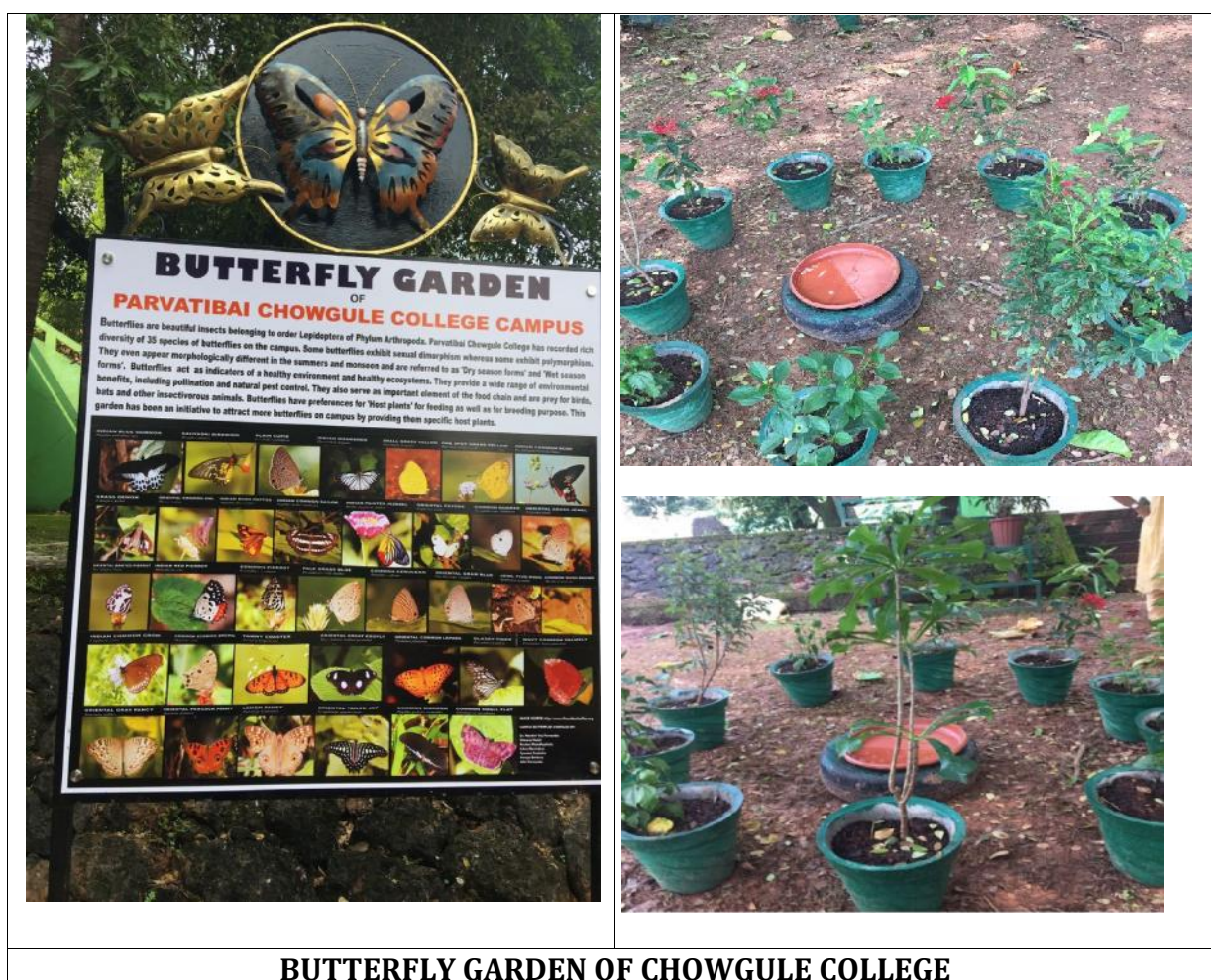
<b>Sr. No.</b>	<b>Green Initiative</b>	<b>Date</b>
1)	<b>Butterfly Garden: Dr. Nandini Vaz Fernandes</b> took an initiative of creating a butterfly garden in the campus, which was inaugurated on The butterfly garden has different host plants planted in it which include both adult and larval feeding plants. The garden also has shelter providing trees and shrubs, water and substitute for nectar. It also has a board displaying the different species of butterflies found on the campus. The Relevance of Butterfly garden in ensuring clean environment is multiple. The most important feature is that Butterflies serve as an 'Ecosystem barometer' which that tells us about the health of our environment. Presence of many species of butterflies on our campus is an indication that the Chowgule college campus is clean and healthy.	02/10/17
2)	<b>Environment Conservation Competitions for students:</b> Photography competitions, painting competitions and poster competitions were organized for students.	26/06/18 & 26/06/19
3)	<b>Bird Houses on campus:</b> In order to encourage faunal biodiversity on the campus, 15 birdhouses were installed in various regions of the Campus.	02/10/17 & 13/02/18
4)	<b>Documenting faunal diversity:</b> The insect and avian diversity is recorded for past five years as part of the curriculum. This activity is carried out by zoology students. 68 species of Nonchordates and 89 species of vertebrates are recorded in the campus. 51 species of lepidopterans and odonates are recorded which includes Atlas moth (largest moth) and southern birdwing(largest butterfly). 69 species of birds are recorded on the campus over period of 05 years and the college also participates in the annual bird festival 'Global Backyard Bird Count' where list of birds on campus are recorded on E-Bird global site. Other fauna reported are amphibians, snakes, monitor lizards, langoor and macrochiroptera (flying foxes).	2015- 2020

5)	<b>CAMPAIGN AGAINST SINGLE USE PLASTIC</b> The students designed pamphlets to create awareness regarding the ill effects of single use plastic on the environment and encouraged carrying own cutlery. They also carried out a survey to know about the waste management, segregation and disposal at households in Gogol area. The students collected waste cloth materials and gave it to 'Mudra Prathistan' who designed cloth bags. These were further distributed to the local people.	12-10-19
6)	<b>4RS AND TECHNIQUES OF WASTE DISPOSAL</b> The community outreach activity was carried out in order to create awareness on Waste Management techniques and to provide ways of reducing waste. The students visited various hotels in Arlem and explained about the different methods of waste disposal.	12-10-19
7)	<b>AWARENESS ON SANITATION – COLLEGE CAMPUS</b> This awareness activity mainly focused on cleanliness in the girl's washroom sanitation, aiming to initiate more responsibility from the students by interacting with them. The students stuck posters around the campus, including canteen, the café coffee day and girls washroom.	05-10-19
8)	<b>ORGANIC COMPOSTING AND BIOGAS</b> Awareness on different composting techniques such as direct composting, vermicomposting, composting and farm yard manure were explained to our college students with the help of posters. The students encouraged the use of vermicomposting and also gave a brief introduction on biogas and its benefits.	03-10-19
9)	<b>HAZARDS AND NEED FOR PROPER MANAGEMENT OF RADIOACTIVE AND E-WASTE</b> To promote awareness about hazards and need for proper management of radioactive and E-Waste, the students used posters and explained about the various sources and methods of disposing radioactive and electronic wastes. They also visited various stationary shops as they utilize electronic equipment such as Xerox and printers and explained the different methods of disposal of e-wastes.	04-10-19 05-10-19
10)	<b>AWARENESS ON SEWAGE DISPOSAL AND MEDICAL WASTE MANAGEMENT.</b> The students used posters to create awareness on Sewage disposal and medical waste management. Different methods of waste segregation were explained to the college students. They also informed as to how waste can be segregated at home, as proper segregation is the best way to manage waste.	12-10-19
11)	<b>AWARENESS ON IMPORTANCE OF VERMICOMPOSTING</b> The students used posters to explain the importance of vermicomposting. The aim was to educate students on the process and techniques of vermicomposting. They encouraged other students to practice it, as vermicomposting not only helps in eliminating waste but	27-09-19

	also produces compost that can be used as an organic fertilizer.	
12)	<b>AWARENESS ON REDUCING THE USE OF PLASTIC AND ILL EFFECTS OF GARBAGE DUMPING</b> Students created awareness among the local villagers of Fatrade, Varca about the different waste management techniques and how to prevent it. The main aim was to make people aware about the waste they are contributing unknowingly by extensive use of plastic and dumping waste. Students also introduced them to the technique of composting which they can use in their backyard.	18-10-19
13)	<b>SOURCES AND DISPOSAL OF WASTE</b> Students created awareness on the different sources of waste and how one can segregate and dispose the waste safely without harming the environment. The students used posters to create the awareness in the college campus as well as in their locality. The first part of the program was an awareness program done in the society with the help of the poster various sources of waste were explained like e-waste, domestic waste, medical waste, etc. The second part was an awareness program done in college with the help of posters they explained the sources of waste, different techniques of segregation and methods of disposal.	14-10-19 15-10-19
14)	<b>LABELING WASTE-BINS FOR ENABLE SEGREGATION OF WASTE</b> All student of the SEC course labeled the waste-bins on the campus. The bins were labeled to anable waste segregation on the campus. The bins were labeled for segregation of food waste, plastic, tetrapacks, paper, leaf litter and metal.	18-10-19
15)	<b>AWARENESS ON WASTE MANAGEMENT IN LOCAL COMMUNITIES</b> The student approached the local people of Ponda and personally discussed all their queries regarding the waste management issues that they face on daily basis. She also emphasized on the segregation of not only the biodegradable and non-biodegradable waste but also the segregation of re-useable and recycle-able waste among the non-biodegradable components .The main objective was to reignite the awareness amongst the locals regarding the ill aspects of improper waste management.	19-10-19
16)	<b>METHODS OF WASTE TREATMENT AND IMPORTANCE OF PRACTICING WASTE SEGREGATION AND MANAGEMENT</b> The students created awareness among the college students regarding the different methods of waste treatment, the 3Rs and the importance of practicing waste segregation and waste management using posters The students prepared a feedback form to know if the explanation with the enriched their knowledge regarding the waste management techniques. They also stuck labels on energy and water conservation on campus.	11-09-19 12-09-19

17)	<b>'Save Energy' initiative:</b> As an initiative to save energy on campus, 06 students under guidance of Dr. Nandini Vaz Fernandes, conducted awareness programme by sticking labels on doors/ walls to switch off ACs, Lights and Fans in classrooms and administrative block when the venue is not in use.	02-05-2019
18)	<b>'Save water' initiative:</b> As an initiative to save water on campus, 06 students under guidance of Dr. Nandini Vaz Fernandes, conducted awareness programme by sticking labels on to turn off the taps tightly, and prevent unnecessary wastage of water in canteen and restrooms.	03-05-2019
19)	<b>Renaming Bins for Waste Segregation:</b> Designed Sticker Labels for Bins. All bins on the campus were renamed to facilitate waste segregation. The bins were marked as leaf litter, Food waste, Plastic waste, paper waste, glass waste, metal waste and E-Waste.	01-05-2019

## Some Photographs





## COMPETITIONS FOR STUDENTS



## AWARENESS PROGRAMME BY STUDENTS

**Dr. Nandini Vaz Fernandes**

Associate Professor

Head, Department of Zoology

Dean- Faculty of Life Sciences

Parvatibai Chowgule College of Arts & Science, Margao Goa – 403602.



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**ENVIRONMENT CONCIOUSNESS**  
**GREEN INITIATIVES**  
**2018-19**

**DEPARTMENT OF ZOOLOGY:**

Department of Zoology conducts various activities related to environment conciousness such as competitions, Industry-academia lectures, fieldtrips, workshops/conferences/seminars related to environment conservation and awareness programmes. The department has also promoted green initiatives on the campus through 'Chowgule's Birders Club', Butterfly garden. Department also conducts certificate course on Vermicomposting.

Activities carried out by TYBSc Department of Zoology for 2018-2019 are given below:

**1) AWARENESS PROGRAMMES:**

Under the guidance of all faculty form deparatment of Zoology, the TYBSc students carried out the following awareness programmes to promote environment conciousness:

- a) **Kitchen waste segregation (05-04-2019 - 06-04-2019):** Community outreach program on kitchen waste management was conducted in and around Margao, namely Kavlem, Navelim, Cansaulim and Paigin. The aim of the programme was to spread awareness about segregation and composting of kitchen waste from households. A Total of 60 houses were a part of this activity.
- b) **Waste Segregation and Collection (05-04-2019- 10-04-2019):** This programme was conducted to create awareness on the aspects of waste management, segregation, recycling and composting. A total of 50 houses

in Margao, Raia, Assolna, Cortalim and Vasco benefitted from this programme.

- c) **Sanitary Hygiene** (05-04-2019- 10-04-2019): To create awareness on the aspects of sanitary hygiene and menstrual health, 50 houses in Borda, Gogol, Nuvem, Raia, Paroda, Shiroda, Cuncolim, Assolna, Quepem, Colva and Vasco were considered for the programme. Subjects were made aware of the various aspects of menstruation and care to be taken during menstruation.
- d) **Beach Cleanup** (05-04-2019- 06-04-2019): Colva, Benaulim and Hollant beach cleanup was done to create awareness among the locals to keep the beaches clean. Cleaning up beaches could boost local economies in addition to preserving natural treasures and animal habitats.

## 2. COMPETITIONS ON ENVIRONMENT CONSERVATION CONCIOUSNESS :

- a. Photography competition was organised on 26<sup>th</sup> July 2018, to sensitise students on Mangroves biodiversity, its importance, consequences of its destruction and need for conservation of mangroves.
- b. Painting competitions was organised on 26<sup>th</sup> July 2018 to sensitise students on various aspects of Mangroves, its importance, consequences of its destruction and need for conservation of mangroves.



## 2. FIELD TRIPS RELATED TO ENVIRONMENT CONSERVATION CONCIOUSNESS :

- a. **Field trip to Mollem:** Miss Madhu P Balekai, Miss Tessa Vaz, Miss Andrea D'Souza, Miss Gautami Manakikar and Mr. Stephen Dias along with 70 FYBSc and TYBSc students visited Bhagwan Mahaveer Wildlife Sanctuary On the 9<sup>th</sup> September 2018. Aim was to acquaint the students with the rich diversity of flora and fauna present in Goa's protected areas.



- b. **Field trip to Cotigao:** Miss Madhu P Balekai and Miss Andrea D'Souza organized a local field trip on 24<sup>th</sup> march 2019 to Cotigao Wildlife Sanctuary for FYBSc students. They identified amphibians, arthropods, reptiles, birds and mammals. After the visit at sanctuary the students were taken to Olive Ridley nesting sites at Galjibag beach.



- c. **Field trip to ICAR, Old Goa:** Ms. Andrea D'Souza, Ms. Tessa Vaz, Ms. Gautami Manakikar and Mr. Stephen Dias along with 35 students of the third year and 55 students of the Second-year zoology visited the ICAR - Central Coastal, Agricultural Research Institute, Old Goa on the 19<sup>th</sup> of March 2019. The students specifically visited the entomology and the fisheries department for the purpose of study.



- d. **Field trip to fish landing site, Betul:** Faculty members Ms. Andrea D'Souza, Ms. Tessa Vaz and Ms. Gautami Manakikar along with 56 students of the second-year zoology visited a fish landing site at Betul. The students observed the different kinds of fishing gears, trawlers and other equipment used for fishing.



### 3. INDUSTRY-ACADEMIA LECTURES/ACTIVITIES:

- a. **Bird Conservation:** Chowgule's Birder's Club of Zoology department organized its Industry-Academia lecture series on 13<sup>th</sup> August 2018. The objective of this event was to acquaint the students with the rich diversity of birds in Goa and the importance of bird research. Resource persons were Ms. Marvelyn Dias and Mr. Pankaj Lad Secretary of the Goa Bird Conservation Network (GBCN). The event was attended by 99 students and 07 faculty members.
- b. **Wildlife and Ecotourism:** The Department organized industry-academia lecture series & interaction on 07<sup>th</sup> January, 2019. The theme was on Wildlife and Ecotourism. Resource persons were Mr. Nirmal Kulkarni, Chairman, Mhadei Research Center, Chorla Ghats, India, and Mr. Peter Lobo, Field biologist (Ecotourism). . The event was attended by 98 participants.

- c. **Tiger Census:** Four students from the Zoology department participated in the Wildlife census 2018 which was organized from 01<sup>st</sup> May 2018- 06<sup>th</sup> May 2018 by the forest Department of Goa. This survey is conducted once after every 05 years. Being a part of this survey gave students an unique experience of field data collection of the carnivores and mega herbivores, their pellets, evaluation of its habitat quality and human disturbances in the allotted forested areas.
- d. **Bird walk with Forest department:** Chowgule's Birders club members attended the birdwalk organized by the Forest department, Govt. of Goa on 23rd Feb 2019 at Ria-Maina wetland from 7.00am to 9.30am. Dr. Nandini Vaz Fernandes and 10 students participated in the Birdwalk along with the forest department officials. The Principal Chief Conservator of Forests inaugurated the event. Mr. Siddesh Gaude, Range forest officer and other officials also participated in the Birdwalk.

#### 4. WORKSHOPS/CONFERENCES/SEMINARS:

- a. **National Conference:** The 'Department of Zoology' in association with 'Mangrove Society of India, Goa Branch' and 'Goa State Wetland Authority' organized a National Conference on '*Wetland Conservation: Approaches And Threats*' on 2nd February 2019. The conference on 'Wetland conservation: Approaches and threats' was organized with the objective of creating awareness on the importance of wetland ecosystem, the conservation laws, strategies of conservation and potential threats which exists for wetlands in India. The conference was attended by 112 delegates.
- b. **Exhibition:** The department put up an 'Exhibition of Drones' where there was demonstration of use of drones, and session on how it can be used to enhance wetland research.

## 5. BIRD WALKS BY CHOWGULE'S BIRDERS CLUB (CBC):

The Birders club is coordinated by the faculty coordinators Dr. Nandini Vaz Fernandes and Mr. Stephen Dias along with student coordinators Mr. Abhirajsinh Bhatti, Ms. Ruta Sawant, Ms. Prachi Talavnekar from SYBSc. The following birdwalks were conducted.

- a. Bird walk: Under the guidance of Mr. Stephen Dias and Mr. Joshua Chowgule's Birder's Club of Zoology department organized a bird walk on 17<sup>th</sup> August at Mayna- Curtorim. The students were introduced to birding in the field and bird survey methodology. The walk was for about 1km. About 20 students attended this bird walk.
- b. Global Backyard Bird Count : The Chowgule Birder's Club (CBC) participated in the three day annual global event "Global Backyard Bird Count"(GBBC) from 16<sup>th</sup> to 18<sup>th</sup> February 2019. The FYBSc and SYBSc students participated in the effort to document all the species of birds present in the Chowgule College campus. The findings were registered in the E-Bird global site. A total of 36 birds were recorded in the campus during the campus count. The total bird species count of the campus now stands at 67.

## 6. ENVIRONMENT RELATED RESEARCH :

The faculty and students of department of zoology conducted research related to environment issues and presented the same in national conferences. Papers presented are:

1. Fernandes NV, Ravindran J, Rajadhyaksha R, Coutinho T, Fernandes R and Asolkar Y(2019). Water Quality and Impact on Human Health: Study of Kidney Disorders in Canacona Taluka. Paper presented at National conference on 'Wetland conservation: Approaches and Threats, 2<sup>nd</sup> Feb 2019 at Parvatibai Chowgule college. Awarded first place for the best paper prize.
2. Vaz T, Fernandes A, Redkar K, Raiker D, Sattarkar S and Sudhir P(2019). Assessment of water quality of River Sal: Anthropogenic effect. Paper presented at National conference on 'Wetland conservation: Approaches and Threats, 2<sup>nd</sup> Feb 2019 at Parvatibai Chowgule college. Awarded Third place for the best paper prize.
3. Dsouza A, Fernandes MR, Naik S, Pereira K, Honnaverkar S and Navelkar P (2019). Study of Odonates in Borim. Paper presented at

National conference on 'Wetland conservation: Approaches and Threats, 2<sup>nd</sup> Feb 2019 at Parvatibai Chowgule college.

4. Dias SJ, Gaonkar S, Totad S, Sawant G, Sheikh S(2019). An assessment of Habitat Selection and fishermen's perception of smooth coated otters in Zuari River system. Paper presented at National conference on 'Wetland conservation: Approaches and Threats, 2<sup>nd</sup> Feb 2019 at Parvatibai Chowgule college.
5. Fernandes, NV, Ravindran J, Rajadhyaksha R, Coutinho T, Fernandes R and Asolkar Y(2019). Strategies to Mitigate Chronic Kidney Disorder in Canacona Taluka, Goa. Paper presented at National conference on 'Innovation in Life Sciences for Sustainable Environment' held at Christ University Bangalore on 20th-21st February 2019.
6. Balekai M, Halali D, Rodrigues R, Barbosa S, Sharma M, Pinto J(2019). Dynamics of seasonal forms of *Melanitis leda* (Nymphalidae: Lepidoptera) in response to environmental condition in wild. Paper presented at National conference on 'Innovation in Life Sciences for Sustainable Environment' held at Christ University Bangalore on 20th-21st February 2019.
7. Vaz T, Fernandes A, Redkar K, Raiker D, Sattarkar S and Sudhir P(2019). Impact of water quality on the distribution of Fauna in River Sal, Salcette Goa. Paper presented at National conference on 'Innovation in Life Sciences for Sustainable Environment' held at Christ University Bangalore on 20th-21st February 2019.
8. Manakikar G, Shakya N, Baretto L, Fernandes M, Fernandes R, Cardozo D (2019). Evaluation of water quality in lakes of Curtorim. Paper presented at National conference on 'Innovation in Life Sciences for Sustainable Environment' held at Christ University Bangalore on 20th-21st February 2019.

## **7. CAMPUS INITIATIVES:**

- a. **Bird Houses in the campus:** The Chowgules Birders Club (CBC) installed wooden bird boxes throughout the college campus. The aim of the exercise was to provide artificial nesting/ shelter for the birds inhabiting the college campus. It provides birds with

additional nesting opportunities and gives unparalleled bird watching opportunities.

- b. Butterfly Garden:** The College took an initiative of creating a butterfly garden in the campus, which was inaugurated on 2<sup>nd</sup> October 2017. The butterfly garden has different host plants planted in it which include both adult and larval feeding plants. The garden also has shelter providing trees and shrubs, water and substitute for nectar. It also has a board displaying the different species of butterflies found on the campus. In 2018-19, 16 additional host plants were planted at various locations within the campus. Presence of many species of butterflies on our campus is an indication that the Chowgule college campus is clean and healthy.

#### **DBT STAR COLLEGE SCHEME INTERDISCIPLINARY ACTIVITIES:**

As interdisciplinary projects, following environment conservation related projects were initiated by Chairperson of DBT Star College Scheme, Dr. Nandkumar Sawant and Overall College coordinator, Dr. Nandini Vaz Fernandes:

The projects carried out were:

- 1. Green Audit:** Green audit was conducted of the energy, water and waste generated and biodiversity on the campus.
- 2. Campus Biodiversity Documentation:** Department of Botany, Zoology and Geography carried out the interdisciplinary project of documenting Biodiversity of the Campus. 06 Students under the guidance of Ms. Amisha Pednekar, Ms. Divyarani Rivonkar, Mr. Stephen Dias, Ms. Gautami Mankikar, Dr. Nandini Vaz Fernandes and Mr. Deepak Kumbhar. The Floral and faunal biodiversity was recorded and mapped on the campus.
- 3. Harnessing Solar Energy:** Under the guidance of Mr. Yatin Desai, students carried out project of installing solar panels.
- 4. 'Save Energy' initiative:** As an initiative to save energy on campus, 06 students under guidance of Dr. Nandini Vaz Fernandes, conducted awareness programme by sticking labels on doors/ walls to switch off

ACs, Lights and Fans in classrooms and administrative block when the venue is not in use.

- 5. 'Save water' initiative:** As an initiative to save water on campus, 06 students under guidance of Dr. Nandini Vaz Fernandes, conducted awareness programme by sticking labels on to turn off the taps tightly, and prevent unnecessary wastage of water in canteen and restrooms.

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<b><u>REPORT OF 'CBC COUNCIL INAUGURAL AND LECTURE SERIES'</u></b>	
<b>Title:</b>	<b>CBC council inaugural and lecture series</b>
<b>Date and year:</b>	13 <sup>th</sup> August 2018
<b>Venue:</b>	U- auditorium, ParvatibaiChowgule College of Arts and Science
<b>Resource person/s:</b>	1)Ms. Marvelyn Dias 2)Mr. Pankaj Lad
<b>Organising Committee</b>	Zoology Departmental Faculty
<b>No. of Participants</b>	100
<b>Objective:</b>	To acquaint the students with the rich diversity of birds in Goa and the importance of bird research
<b>Summary of the proceedings</b>	<p><b>Inaugural session:</b> Ms. Andrea D'souza welcomed the gathering with a brief about the Chowgule's birders club which was started in 2014. HOD , Dr. Nandini Vaz Fernandes welcomed the guests and the vice principal with flowers and briefed the audience about the events of the day.</p> <p>The lecture series consisted of lectures by the guest speakers and a brief presentation on birding etiquettes by Dr.NandiniVaz Fernandes</p> <p><b><u>Lecture 1:</u></b> Ms. Marvelyn Dias, an ornithologist and a proactive bird conversationalist who worked as a Secretary of the Goa Bird Conservation Network (GBCN). Her lecture on "Falling in love with birds" was based on her experience of getting into birding. She proved to be a motivation for young birders</p> <p><b><u>Lecture 2:</u></b>The second speaker Mr. Pankaj Lad spoke on "How do bird's Communicate", where he discussed and demonstrated the way birds communicates with the help of their song. He played different calls and songs of birds and helped students identify them based on their sound.</p> <p><b><u>Lecture 3:</u></b>Dr. Nandini Vaz Fernandes, gave lecture on 'Birding and Birding etiquettes'. It was very informative for the young birders as the speaker stressed on the different etiquettes of birding as it is a pre-requisite for any birder pursuing birding.</p> <p>This lecture series was followed by introduction of coordinators of the club, Mr</p>

AbhirajSinh Bhatti and Miss Ruta Tushar Sawant Talaulikar, both from SYBSc. They displayed the schedule of all the activities planned the whole year. To conclude Ms. Madhu gave the vote of thanks to the committee, guests and all the students gathered for the lecture series. The programme with registration for the birders club which is open to all the faculty and students of Chowgule's college.

### Photographs



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**PARVATIBAI CHOWGULE COLLEGE OF ARTS & SCIENCE**  
**(AUTONOMOUS) - GOGOL, MARGAO-GOA**  
**DEPARTMENT OF PHYSICS**

**REPORT OF 'ENERGY AUDIT'**

Title:	Energy Audit
Date and year:	10 <sup>th</sup> November to 19 <sup>th</sup> November 2019
Venue:	Chowgule College
Organising Committee	Physics Department
No. of Participants	6
Objective:	<ul style="list-style-type: none"><li>• To take a stock of performance of the institution with respect to Energy and find potential opportunities for conserving these</li><li>• Use the Audit Report as a Baseline to review Progress periodically</li><li>• Help raise awareness about environmental conservation among students and staff</li></ul>
Summary of the proceedings	<p>The process involved for the energy report is as follows:</p> <ul style="list-style-type: none"><li>• Basic discussion and collection of preliminary information through compilation of data from the Electricity Bills</li><li>• Preparation of detailed inventory list of various appliances in the premises</li><li>• Actual Measurement of few parameters</li><li>• Analysis based on the above to find out ENCON (Energy conservation) methods</li><li>• Estimation of the Solar PV potential of the College</li><li>• Report preparation</li></ul>



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<b><u>REPORT OF 'CAMPUS BIRD COUNT'</u></b>	
<b>Title:</b>	<b>CAMPUS BIRD COUNT</b>
<b>Date and year:</b>	16 <sup>th</sup> to 18 <sup>th</sup> February 2019
<b>Venue:</b>	Chowgule College Campus
<b>Resource person/s:</b>	CBC members
<b>Organising Committee</b>	Cornell Lab of Ornithology & The National Audubon Society
<b>No. of Participants</b>	20
<b>Objective:</b>	To document all the species of birds present in the Chowgule College campus.
<b>Summary of the proceedings</b>	<p>The Chowgule Birder's Club (CBC) participated in the Campus Bird Count 2019 from 16th to 18th February 2019. The Campus Bird Count is an offshoot of the global Great Backyard Bird Count. The FYBSc and SYBSc students participated in the effort to document all the species of birds present in the Chowgule College campus. The counts were held during morning and evening surveys. Each survey consisted of the following:</p> <ol style="list-style-type: none"><li>1. A transect that covered the entire campus was predetermined.</li><li>2. A 15-minute stationary count, also called as a point count was carried out.</li><li>3. Such point counts were repeated along the entire pre-determined transect in-order to cover the entire campus.</li><li>4. Surveys were held continuously for three days.</li></ol> <p>A total of 36 birds were recorded in the campus. The total bird species count of the campus now stands at 67. Information on the bird species found in the college campus is available on <a href="http://www.ebird.org">www.ebird.org</a></p>
<b>Photographs</b>	



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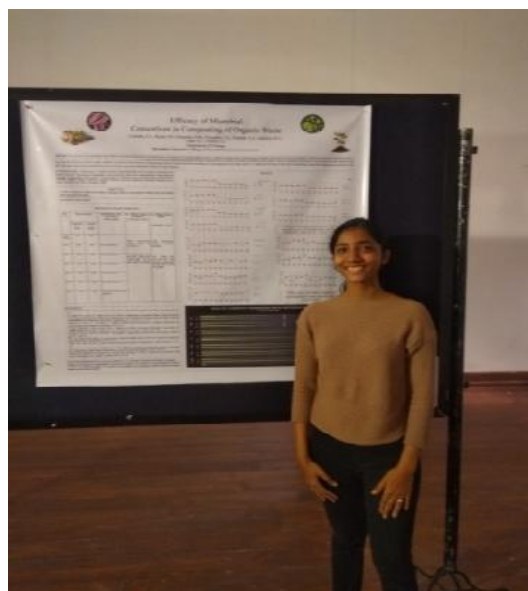
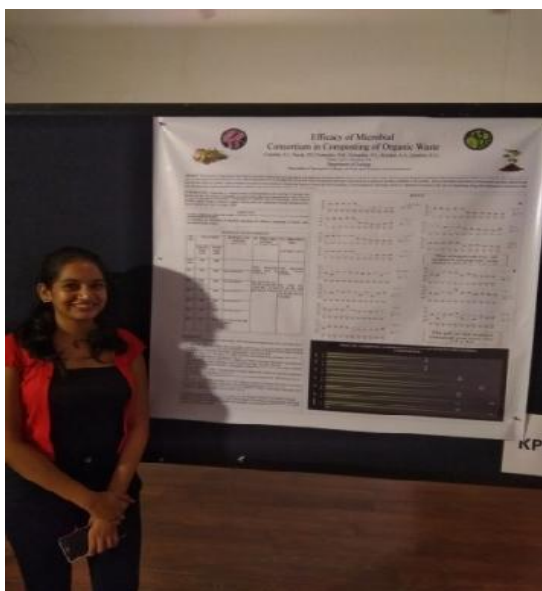
**PARVATIBAI CHOWGULE COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS) - GOGOL, MARGAO-GOA**

**DBT STAR COLLEGE SCHEME ACTIVITY  
INTERDISCIPLINARY PROJECT – COMPOSTING  
ACADEMIC YEAR 2019-2020**

Title:	PROJECT- Composting
Date and year:	2019-2020
Venue:	Parvatibai Chowgule College
Coordinated by:	1) Dr. Nandkumar Sawant 2) Dr. Nandini Vaz Fernandes
Objective:	To formulate an inoculum of microbial consortium for effective composting of mixed waste (household kitchen waste).
No. of Participants	02 faculty 08 students
Summary of the proceedings	<p>In today's world, the need for better and greener options of waste disposal is of the utmost importance. Composting vegetable waste is preferred over mixed waste. But in our homes mostly mixed waste is produced. The present project was undertaken to formulate microbial consortia with specific rate of composting are commercially available. No much data available on effective consortia for small amount of mixed waste generated at the household. Therefore, the project was carried out to formulate 'Microbial Consortium' which will effectively compost mixed waste, based on the enzymes produced by the microorganisms.</p> <p>13 different consortia were experimented with and various parameters such as pH, temperature, weight, gravimetric water content, NPK, percentage of organic carbon and C: N ratio was analysed to check the quality of compost produced.</p> <p>As a final outcome MC5 was concluded to be the most effective consortia.</p> <p>The findings of the research project was presented at academic</p>

forums/competitions:

- 1) Presented at 'Research Presentation Competition' held on 25<sup>th</sup> February 2020 at Parvatibai Chowgule College. The judges were renowned scientists and academicians - Prof. G N Nayak and Dr. Arnab Banerjee. The present research work on Composting received the First Place.
- 2) The research work was selected as the top 13 best projects in Life Sciences by Directorate of Higher Education, Govt. of Goa. The students presented the research poster at 'KALPAK' event organised by DHE, Govt. of Goa to commemorate National Science day.



## PHOTOGRAPHS

REPORT BY  
DR.NANDINI VAZ FERNANDES

**PARVATIBAI CHOWGULE COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)  
GOGOL, MARGAO-GOA**

**DBT STAR COLLEGE SCHEME ACTIVITY 2019-2020**

**INTERDISCIPLINARY PROJECT – HARNESSING SOLAR ENERGY  
ACADEMIC YEAR 2019-2020**

<b>Activity:</b>	Interdisciplinary Project on “Installation of Solar Panels and Solar Street Lights to Harness Solar Energy”
<b>Date and year:</b>	2018-2020
<b>Venue:</b>	Parvatibai Chowgule College
<b>Objective:</b>	<ul style="list-style-type: none"> <li>• To enable students to gain the knowledge of a solar cell, calculation of solar PV potential, fabrication of mounting stands and installation of solar panels.</li> <li>• To enable students to gain the knowledge about the DC to AC inverters and solar street light assembly which will in turn enhance their scientific temper and apply the knowledge to be the potential entrepreneurs in the field of solar panel assembly.</li> </ul>
<b>Proposed by</b>	1) Dr. Nandkumar Sawant 2) Dr. Nandini Vaz Fernandes
<b>Coordinated and executed By</b>	Mr. Yatin Desai, HOD, Physics
<b>No. of Beneficiaries</b>	Faculty: 1 Students: 9
<b>Sequence of events /Resource person/s:</b>	<ul style="list-style-type: none"> <li>• Identification of locations for solar panel installation on street lights</li> <li>• Measuring the area and calculation of solar PV potential.</li> <li>• Placing the order for required items.</li> <li>• Fabricating mounting stands for solar panels.</li> <li>• Installing the solar panel on roof top of D – block.</li> <li>• Installing DC to AC inverter.</li> <li>• Laying electrical cables from inverter to the respective installations.</li> <li>• Erecting street light poles and installing LED bulbs assembly on street-light poles.</li> </ul>
<b>Summary of the proceedings</b>	The project comprised of two parts, the first part included the installation of solar panels on the rooftop of building block D to utilise solar energy to empower electrical gadgets on the first

floor of D-block. The second part of the project included the illumination of road from college main gate to college office using solar street lights.

- 1. Installation of solar panels:** The process involved the identification of a suitable shadow-free space on the roof top of D-block. Nine solar panels of each with maximum power of 330 watts were procured. Thus total maximum power that could be generated is 2.97 kilowatts. The metallic frames were fabricated and fixed on the terrace on which the solar panels were installed. The inverter is installed on the adjacent wall near the roof-top which is used to convert DC voltage output to an AC voltage. The inverter output was wired to different installations by electrical cables. The load is distributed as follows:

**D - BLOCK, FIRST FLOOR**

<b><u>Room Number</u></b>	Entity	Quantity	Starting Load (watts)	Total load (watts)
<b><u>D201</u></b>	Tube light	4	36	144
-	Ceiling fan	1	40	40
<b><u>D202</u></b>	Tube light	4	36	144
-	Ceiling fan	1	40	40
<b><u>D203</u></b>	Tube light	4	36	144
-	Ceiling fan	1	40	40
<b><u>D204</u></b>	Tube light	8	36	288
-	Ceiling fan	2	40	80
<b><u>D205</u></b>	Tube light	12	36	432
-	Ceiling fan	6	40	240
<b><u>D207</u></b>	Tube light	26	36	936
-	Ceiling fan	5	40	200
-			<b>TOTAL</b>	<b>2728</b>

Total Solar PV system size = 2.72 KW

Sunshine period = 7 Hours

Units generated = 19.04 kWh/day

Average electricity cost = 6.05 Rs/kWh

Daily cost saving = 115. 192 Rs/day

Monthly cost saving = 3455.00 Rs/month

Yearly cost saving = 41,460.00 Rs/month

Solar PV system cost = Rs. 200000.00

Payback period = 4.8 years

The average life of Solar PV system is 15 – 20 years.

**2. Installation of solar street lights:**

Objective is to illuminate the road from college main gate to gymnasium. For proper illumination, we proposed to install the

solar powered LED lights at every 10 meters. Accordingly six poles were erected from college main gate to college office. Solar street light works on the principle of solar cells. Solar cell absorb solar energy during the day. The solar cell then converts the solar energy into electrical energy which is stored in the battery. During night time street light starts automatically and consumes energy already stored in the battery. Solar street lights are composed of LED lights. LED lights are used since it works on small currents and hence smaller sized solar panels suffice the solar street lights with LEDs. These LEDs work on directly on DC current and hence there is no additional requirement of DC to AC converter unit.

Units composed of solar panels and LED bulbs were procured and assembled. Each unit is also fixed with motion sensors. During the night time if there is a motion near the solar street light as detected by the motion sensor and all LEDs glow 100%. If there is no motion only 33% of LEDs glow resulting in higher backups and energy savings. For effective functioning of the solar street lights, an array of LEDs bulb of 60 Watts giving light intensity of 30 to 40 lux in the vicinity of the electricity pole are installed.

## Photographs



MOUNTED SOLAR PANELS



PANEL FOR SOLAR STREET LIGHT MOUNTED ON THE POLE AND ITS ILLUMINATION DURING NIGHT





Report by:  
Mr. Yatin P. Desai



## Parvatibai Chowgule College of Arts and Science

Autonomous

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<b><u>REPORT OF 'INTERNATIONAL BIODIVERSITY DAY'</u></b> <b><u>ATTENDED BY STUDENTS</u></b>	
<b>Title:</b>	<b>International Biodiversity Day</b>
<b>Date and year:</b>	22 <sup>nd</sup> May 2018
<b>Venue:</b>	International Centre Goa, Dona Paula.
<b>Organising Committee</b>	The Society for Environment and Biodiversity Conservation (SEBC) and The International Centre Goa in collaboration with The Himalaya Drug company (Bengaluru).
<b>No. of Student Participants</b>	Melita Pereira Jewella Pires
<b>Objective:</b>	To create awareness on 'Save Biodiversity- Rich Western Ghats
<b>Summary of the proceedings</b>	Two of our SYBSc students, Melita Pereira and Jewella Pires participated in a one-day workshop to celebrate "International biodiversity day ". The theme for the same was - ' Save Biodiversity - Rich Western Ghats'. The event began with a Nature trail followed by an inaugural function of the photography exhibition of " biodiversity of Western Ghats ", Medicinal plant Exhibition and Wild Edible Fruits Exhibition. This was followed by lecture series by various speakers on 'Exploration of Biodiversity'. A film was also shown on biodiversity and sustainable development. Followed by an interactive session. Ending the day with a Valedictory function with certificate and hamper distribution by The Himalaya Drug company (Bengaluru).

## Photographs



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**REPORT OF ' WILDLIFE CENSUS' – PARTICIPATION BY STUDENTS**

<b>Title:</b>	<b>Wildlife Census 2018</b>
<b>Date and year:</b>	1 <sup>st</sup> May 2018 to 6 <sup>th</sup> May 2018
<b>Venue:</b>	Netravali wildlife sanctuary and Cotigao wildlife sanctuary
<b>Resource person/s:</b>	Goa Forest Department
<b>Organising Committee</b>	Wildlife and Ecotourism
<b>No. of Participants</b>	04 students from department of zoology 01 student from department of economics
<b>Objective:</b>	To estimate the 'India tiger' count and to acquaint students with the techniques of field data collection.
<b>Summary of the proceedings</b>	It included a walk of 5 to 7 km, with a group of 4 people viz, a Forest guard, a labour, and volunteers in the forested area to observe evidences for these species. Volunteering to this survey gave a unique experience of field data collection of the carnivores & mega herbivores, their pellets, its habitat quality and human disturbances in the allotted forested areas. It was a great platform for the students to interact with forest guards and other forest officers.

**Photographs**



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**REPORT OF ' CHOWGULE'S BIRDERS CLUB BIRD WALK**

<b>Title:</b>	<b>Chowgule's Birders Club Bird walk</b>
<b>Date and year:</b>	17 <sup>th</sup> August 2018
<b>Venue:</b>	Maina- Curtorim, Goa
<b>Resource person/s:</b>	CBC coordinators and members
<b>Organising Committee</b>	Chowgule Birders Club
<b>No. of Participants</b>	20
<b>Objective:</b>	The students were introduced to birding in the field and bird survey methodology
<b>Summary of the proceedings</b>	<p>The Chowgule's Birder's Club organized its first bird walk for the academic year 2018-19 on 17th August 2018 at Maina-Curtorim, Goa. The walk was for about 1km. About 20 students attended this bird walk under the guidance of Sir Stephen Dias and Mr. Joshua. Some of the birds that were identified are listed below:</p> <p><b>1)Brahminy kite</b>– Medium sized raptor with white head and breast. Body is chestnut brown. The very tip of the tail is white. Wings are broad and the tail is short. Legs are short and not feathered. Beak is lemon yellow in colour.</p> <p><b>2)Red - Whiskered Bulbul</b> – It has a pointed black crest, white cheeks, brown back reddish under tail coverts a long white tipped tail. The red whisker mark from which it gets its name.</p> <p><b>3)Lesser Whistling Duck</b>– A medium sized duck, orange brown in colour with scaly pattern on back, large head, thin neck and long legs. In flight the large rounded wings look black below and distinct maroon patches are visible on the forewings and rump.</p> <p><b>4)Cormorant</b>– Medium to large birds. Have dark feathers. Have narrow, long and hooked beak. The skin on the face can vary in colour from blue to red to orange.</p> <p><b>5)Peafowl</b>– It is a large and brightly coloured bird. It is prominently blue with a</p>

	<p>fan like crest of spatula tipped wire like feathers. Has a long train made up of elongated upper tail covert with colourful eye spots.</p> <p><b>6)Jungle mynah</b>– It is a grey-brownish bird with a tuft of feathers forming a small crest on the forehead and the base of the tail. It has a black head with the upper area being more grey-brown. Chin, breast and belly dark ashey grey.</p> <p><b>7)White Throated Kingfisher</b> – they have thick, reddish orange bills, red legs, and dark chocolate coloured heads, bellies, and shoulders. A brilliant white patch can be found on the throat. The wings and tail are bright blue with white patches on the primaries and the black distal tips.</p> <p><b>8)Rock Pigeon</b>– it has a dark bluish grey head, neck, and chest with glossy yellowish, greenish and reddish purple iridescence along its neck and wing feathers. The iris is orange red or golden with a paler inner ring. The bill is grey-black with a conspicuous off white crest, and the feet are purplish red.</p> <p><b>9)Wire Tail Swallow</b>– a very distinctive swallow with two long, thin feathers, on its outer tail from which it gets its name. It has brilliant glossy blue upperparts and a chestnut forehead and crown that contrasts with clean white under parts.</p> <p><b>10)Purple Heron</b>– large heron with rusty head and streaky neck. Has purple brown plumage with slate grey wings, reddish brown breast, black belly and reddish-purple flanks and scapulars.</p> <p><b>11)Green Bee – Eater</b>- A small dainty bee eater that is intensely green overall with a greenish blue throat, a thin black throat band, and long central tail feathers. Flies gracefully as it catches insects and other prey.</p> <p><b>12)Ashy Prinia</b>– It is a small warbler. It has a black bill, pale cinnamon underparts, a gray head, and a greyish brown back. Nonbreeding birds acquire a short eyebrow and a longer tail.</p> <p><b>13)Common Kingfisher</b>– small and often shy, and inconspicuous. Has turquoise green upperparts with brighter turquoise rump. Tail is blue. Wings are darker blue, finely spotted with turquoise on greater coverts. The underparts are rufous orange slightly darker on flanks. On the head crown and maler stripe are blue, finely spotted with paler blue and black.</p> <p><b>14)White Rumped Munia</b>– Has a stubby grey bill and a long black pointed tail. The adults are brown above and on the breast and lighter below. The rump is white. Males have more bulky head and bill.</p> <p><b>15)Red Wattled Lapwing</b>- A distinctively marked lapwing with a black breast, throat and a red bill with a black tip. It also sports red wattles in front of the eyes and a white patch that runs down the cheeks to the underpart.</p>
<b>Photographs</b>	





## Parvatibai Chowgule College of Arts and Science

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<b><u>REPORT OF ' FIELD TRIP FOR FYBSc AND TYBSc</u></b>	
<b>Title:</b>	<b>Field trip for FYBSc and TYBSc</b>
<b>Date and year:</b>	9 <sup>th</sup> September 2018
<b>Venue:</b>	Bhagwan Mahaveer Wildlife Sanctuary, Mollem, Goa
<b>Resource person/s:</b>	Ms. Madhu P. Balekai Ms. Tessa Vaz Ms. Andrea D'Souza Ms. GautamiManakikar Mr. Stephen Dias
<b>Organising Committee</b>	Ms. Tessa Vaz Mr. Stephen Dias Ms. GautamiManakikar Ms. Andrea D'Souza Ms. Madhu P. Balekai
<b>No. of Participants</b>	70
<b>Objective:</b>	To acquaint the students with the rich diversity of flora and fauna present in Goa's protected areas.
<b>Summary of the proceedings</b>	<p>The department of zoology organized a local field trip for FYBSc and TYBSc students along with Miss Madhu P Balekai, Miss Tessa Vaz, Miss Andrea D'Souza, Miss GautamiManakikar and Mr Stephen Dias.</p> <p>A 3 km transect was covered by the group in the protected area. The students were exposed to the biodiversity that can be found in the western ghats during the monsoon season. The primary goal of the field trip was to aid in identification of invertebrates and vertebrates in the field. This was viable since the monsoon season is the best time of the year for students to observe small organisms such as invertebrates, amphibians and reptiles.</p> <p>In addition, the students were trained on several aspects of biodiversity such as:</p> <ol style="list-style-type: none"><li>1. Identification of invertebrates</li></ol>

## 2. Invertebrate sampling methodologies

The students were later assessed based on individual reports were submitted.

The organisms that were observed during the field trip:

### **1. Invertebrates:**

- Spiders: 06 species
- Butterflies: 12 species
- Millipedes: 01 species
- Centipedes: 01 species
- Dragonflies: 06 species
- Damselflies: 02 species
- Leaches: 1 species
- Earthworms: 1 species

### **2. Vertebrates:**

- Birds (23 species)
- Mammals (02 species)
- Reptiles (04 species)
- Amphibians (05 species)

In addition, to the aforementioned species, several indirect signs of birds and mammals were observed in the park such as:

- Leopard Scat
- Porcupine droppings
- Deer droppings
- Fish owl pellet
- Hoof marks of Gaur and deer

Pugmarks of leopard and Golden Jackals

### Photographs



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**Parvatibai Chowgule College of Arts and Science**  
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**Report on “An awareness rally against open defecation”**

NSS unit of Parvatibai Chowgule college of Arts and Science, Autonomous organised an awareness rally against “**Plastics**” on 14<sup>th</sup> November 2018 during the NSS special rural camp stay at Government college of Arts, Science and Commerce, Quepem from 10<sup>th</sup> to 16<sup>th</sup> November 2018. The four NSS Programme officers Mr. Pradeep Jatal, Mrs. Sarika Advilkar, Dr. Mayuri Naik and Mr. Ashish Ashwini along with 120 NSS volunteers participated in the rally. Students actively collected all the plastic waste from the areas surrounding Quepem college along with raising different slogans.





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**An awareness rally against “open defecation”**

NSS unit of Parvatibai Chowgule college of Arts and Science, Autonomous organised an awareness rally against **“open defecation”** on 15<sup>th</sup> November 2018 during the NSS special rural camp stay at Government college of Arts, Science and Commerce, Quepem from 10<sup>th</sup> to 16<sup>th</sup> November 2018. The four NSS Programme officers Mr. Pradeep Jatal, Mrs. Sarika Advilkar, Dr. Mayuri Naik and Mr. Ashish Ashwini along with 120 NSS volunteers participated in the rally. The rally mainly focused on spreading awareness on the importance of sanitation in rural areas surrounding Quepem college. NSS volunteers enquired about the availability and use of toilet facility by the village residents through door to door campaigning.





**Parvatibai Chowgule College of Arts and Science**  
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**Report on “Cleaning in College campus”**

NSS unit of Parvatibai Chowgule college of Arts and Science, Autonomous carried out cleaning on 30<sup>th</sup> August 2018 in the college campus.





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**Report on “Cleaning in front of college canteen area”**

NSS unit of Parvatibai Chowgule college of Arts and Science, Autonomous carried out cleaning on 6<sup>th</sup> September 2018 in the college campus in front of canteen area.





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**Report on “Cleaning in front of college canteen area”**

NSS unit of Parvatibai Chowgule college of Arts and Science, Autonomous carried out cleaning on 28<sup>th</sup> September 2018 in the college campus in front of canteen area.





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**Report on “Cleaning in two wheeler parking area of college campus”**

NSS unit of Parvatibai Chowgule college of Arts and Science, Autonomous carried out cleaning on 18<sup>th</sup> January 2019 in the college campus in two wheeler parking area.





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**Report on “Tiger Activity Centre area beautification in college campus”**

NSS unit of Parvatibai Chowgule college of Arts and Science, Autonomous carried out Tiger Activity Centre area beautification on 25<sup>th</sup> January 2019.





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**Report on “Cleaning in two-wheeler parking area of college campus”**

NSS unit of Parvatibai Chowgule college of Arts and Science, Autonomous carried out cleaning on 1<sup>st</sup> February 2019 in the college campus in two wheeler parking area.





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## **REPORT OF 'OYSTER MUSHROOM CULTIVATION WORKSHOP'**

**Title:** Oyster Mushroom Cultivation Workshop

**Date and year:** 2 November 2018

**Venue:** Botany Laboratory

**Resource person/s:**

1. Ms. Gauri Prabhudessai, Assistant Agriculture Officer, Zonal Agriculture Office, Margao
2. Ms. Richa Desai, Block Technology Manager, ATMA South

**Organising Committee:** Mrs. Amisha Pednekar and Mrs. Divyarani Revankar

**No. of Participants:** 25

**Objective:**

1. To impart hand-on training in Oyster mushroom cultivation
2. To enlighten the participants about the technicalities of mushroom cultivation.
3. To strengthen the participants to begin their journey as entrepreneurs

### **Summary of the proceedings:**

As a part community outreach programme, Department of Botany of Parvatibai Chowgule College of Arts and Science (Autonomous), Gogol, Goa in collaboration with Agriculture Technology management Agency (ATMA), South Goa, Directorate of Agriculture, Goa, organized one-day workshop on 'Oyster Mushroom Cultivation' on 2nd November 2018 from 9:00 AM to 5:00 PM at Botany Laboratory. This workshop was sponsored under Department of Biotechnology (DBT) Star College Scheme. This event was open for students, faculty, and other public. This workshop enlightened the participants on importance of mushrooms and its cultivation in India. The sessions were very interactive, with hands on practical training and the participants gave positive feedback on this workshop. Also, the budding entrepreneurs M square Farms shared their experiences with the participants.



**Parvatibai Chowgule College of Arts and Science**  
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## **REPORT OF 'GREEN BAZAAR-AGRI EXPO'**

**Title:** Green Bazaar- Agri Expo

**Date and year:** 14 December 2018

**Venue:** A- 208, Science Block(Inaugural) and Tiger's Avenue (Stalls)

**Resource person/s:**

1. Oyster mushrooms (M square farms),
2. Essential oil products, soaps and more (Agathose essentials),
3. Fruit graft saplings (Cajie Farms),
4. Organic bio products (Green planet)
5. Ornamental plants, Succulents, Vertical planters. (GHK's Sprouting dreams)
6. Organic compost, mulch, henna stall (Students entrepreneur stall)

**Organising Committee:** Mrs. Amisha Pednekar and Mrs. Divyarani Revankar

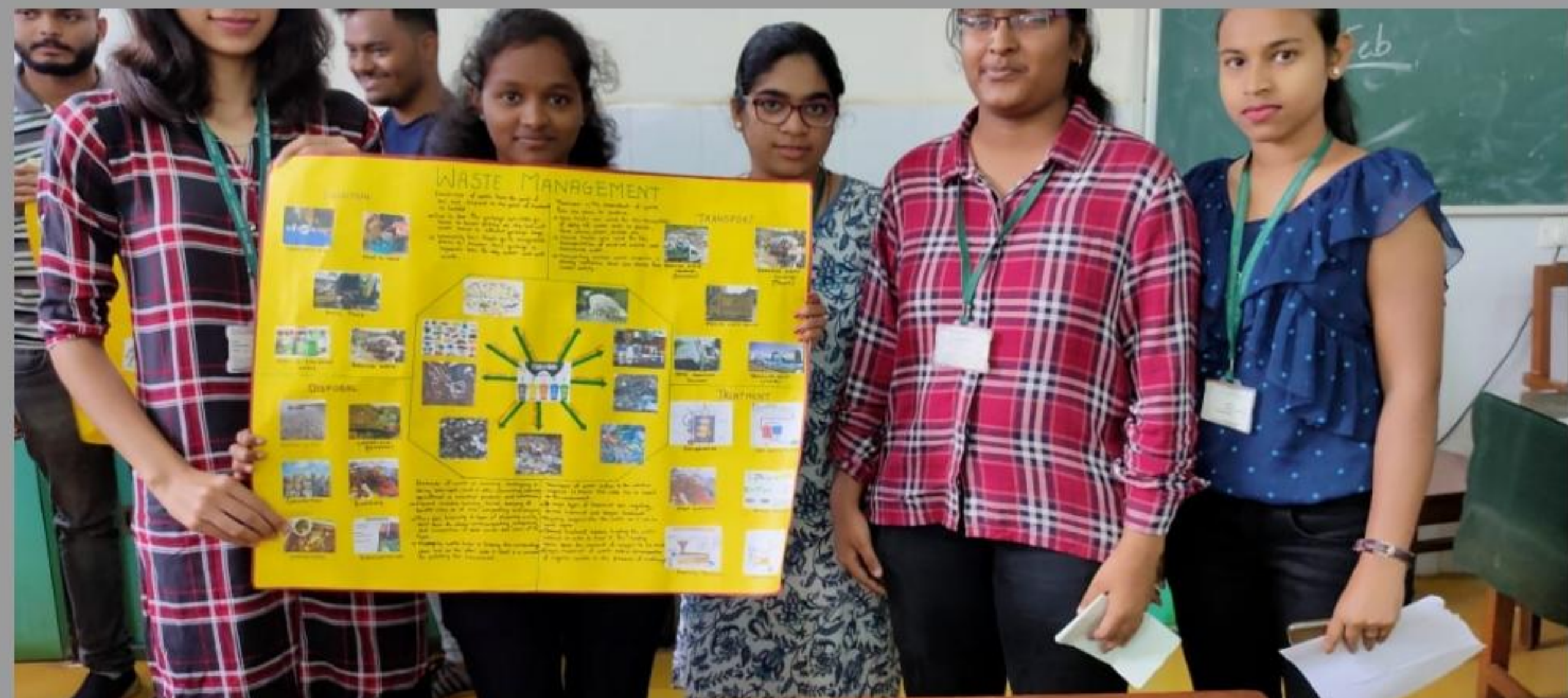
**No. of Participants:** Open to all

**Objective:**

1. To encourage students into entrepreneurship, by having a stall and understanding the technicalities of handling one.
2. To exhibit variety of plants for sale for the staff, students and general public.
3. To expose them to the scope of nursery management.

**Summary of the proceedings**

The inaugural was held at A- 208, Science Block. Vice Principal Dr. Shaila Ghanti, College DBT Coordinator Dr. Nandini Vaz Fernandes graced the inaugural with their presence. At the inauguration, Vice Principal of the college Dr. Shaila Ghanti said it's important for the students to think and innovate. And innovate in such a way that it benefits the society. She emphasized on the importance of thinking towards innovation.





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<b>Title:</b>	<b>Installation of Bird Houses - Green Initiative</b>
<b>Date and year:</b>	13/02/2018
<b>Venue:</b>	Parvatibai Chowgule College of Arts & Science
<b>Resource person/s:</b>	CBC coordinators
<b>No. of Participants</b>	25
<b>Objective:</b>	Installation of bird houses in the college campus
<b>Summary of the proceedings</b>	<p>Bird houses were installed at various locations on the college campus, to provide shelter for small birds and encourage them to inhabit the campus niches. The student members of birders club installed the birdhouses, which housed soft natural material bedding and will serve as resting sites for birds. The birds that visit your backyard are a part of the whole ecosystem. The Importance of birdhouses can't be understated if you want to attract birds to your yard. Having a home for your feathered friends adds some interest to your yard and makes sure the birds will keep visiting. There are also many other bird house benefits, as well</p> <p>Bird Houses are often called nesting boxes because they provide a safe place for birds to build their nests, protected from the elements and predators. In the winter months, they give visiting birds a place to snuggle together for warmth away from the cold air.</p> <ul style="list-style-type: none"><li>• <b>Controlling pests.</b> Since birds eat insects, they will help to eliminate unwanted pests in your yard and free you from needing to use otherwise harmful pesticides.</li><li>• <b>Weed control.</b> Birds love to eat weed seeds. Gardeners do not like to weed. A Win win situation for all!</li><li>• <b>Flower pollination.</b> There are many birds who love to sip nectar from flowers and help to pollinate. With the bee population diminishing, attracting birds who do this is sure to benefit your garden.</li><li>• <b>Conservation.</b> Birds love native plants. If you grow these and then attract birds to your yard with bird friendly birdhouses, you will find that your gardening chores will diminish.</li><li>• <b>Property Values.</b> A well maintained home with native landscaping that attracts birds has great curb appeal, which helps with property values.</li></ul>

Photographs





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Best affiliated College-Goa University Silver Jubilee Year Award

**REPORT OF INDUSTRY ACADEMIA LECTURE SERIES - MANGROVES**

<b>Title:</b>	<b>Industry Academia lecture Series - Mangroves</b>
<b>Date and year:</b>	30 <sup>th</sup> July 2018
<b>Venue:</b>	Auditorium
<b>Resource person/s:</b>	Lecture Series: Dr.Untawale, Dr.Dhargalkar, Dr.SayeedaWafar Mr. DevanandKavalekar
<b>Organising Committee</b>	1. Dr. Nandkumar Sawant (Chairman DBT Star College Scheme) 2. Dr. Nandini Vaz Fernandes (HOD, Zoology & College coordinator DBT Star College Scheme) 3. Ms. Madhu Balekai 4. Ms. Tessa Vaz 5. Ms. Andrea D'souza 6. Mr. Stephen Dias 7. Ms. GautamiManakikar
<b>No. of Participants</b>	150
<b>Objective:</b>	To organize joint activities in research, training, community outreach, co-curricular and extra - curricular areas and enable students to carry out internships.
<b>Summary of the proceedings</b>	<p>The Department of Zoology of Parvatibai Chowgule college of Arts and Science (Autonomous), in association with 'Mangrove Society of India' (MSI) organized Lecture series on 'Mangrove ecosystem' on 30<sup>th</sup> July 2018. The department of Zoology had organized painting and photography competitions on 26<sup>th</sup> July to commemorate the 'World mangrove day'. As a continuation of the celebration the lecture series were organized on 30<sup>th</sup> July 2018.</p> <p>The chief guest of the function was Dr. Pradeep Sarmokadam, member secretary of Goa State Biodiversity board. The function was held in the auditorium of</p>

Chowgule College and was attended by the faculty and students of botany, geography and zoology. Principal Dr. Nandkumar Sawant welcomed the chief guest with memento and flowers and said that we look forward to bring about societal awareness in terms of conservation. Dr. Sarmokadam addressed the faculty and students and said that young students should be venturing into applied biodiversity research, the outcome of which can be used to address the issues faced by our state and nation as a whole. He also appreciated the role of Chowgule College in formulation of 'Biodiversity Heritage site' document for Curtorim panchayat and its role as 'Technical Support group' for the preparation of 'People's Biodiversity register" by team of faculty of Chowgule College.

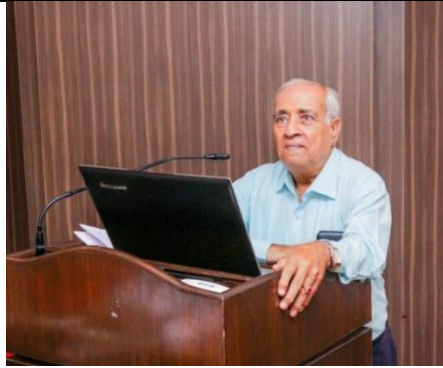
"The speakers lecture series were specially selected to create awareness about the importance of mangroves and the uniqueness of floral and faunal diversity in mangrove ecosystem" said Dr. Nandini Vaz Fernandes, Head of the department of Zoology.

The speakers were scientist/former scientist of National Institute of Oceanography (NIO) Dona Paula and current members of Mangrove society of India. Dr. Untawale, executive secretary of MSI, spoke on "Coastal ecosystem of Goa" where he stressed on the different aspects of the ecology of mangoves and wetlands in Goa. He talked about the species of mangrove plants and their ecological adaptations and the role of these mangrones in protection of the Goan coast.

Dr. V Dhargalkar, joint secretary of MSI spoke on "Mangrove fauna" and described the uniqueness of the micro, meso and mega fauna of the mangrove ecosystem. He explained the relationship of all the plants and animals including humans in the food web of mangrove ecosystem.

Dr. Sayeeda Wafar spoke on "Mangrove productivity and Mr. D Kavlekar scientist at NIO spoke on 'Mangrove bioinformatics'. The MSI also put up exhibits of the mangrove flora, fauna, uses and threats in the 'Mangrove exhibit' gallery held in the quad of Chowgule College. The photographs and paintings done by the zoology students on the theme 'Mangrove fauna' was also exhibited in the gallery.

#### Photographs



Dr. Untavale, Executive Member secretary of MSI



Figure 1 :Principal Dr. Nandkumar Sawant welcoming the Chief Guest Dr. Pradeep Sarmokadam for the Lecture Series Function



Figure 2: Chief Guest Dr. Pradeep Sarmokadam addressing the Lecture Series function

